

Having thus described the preferred embodiments, the invention is now claimed to be:

1. A method of image compression, said method  
5 comprising the steps of:

- (a) digitizing an image;
- (b) segmenting the image in a plurality of  
different manners to generate a plurality of segmented images;
- (c) compressing each of the segmented images;
- 10 (d) determining a bit rate for each of the  
compressed images;
- (e) determining how much image distortion results  
from each compression; and,
- (f) selecting the manner of segmentation which  
15 results in an optimal compromise between the rate and  
distortion.

2. The method according to claim 1, wherein the  
segmenting is carried out using a 3-layer MRC model.

3. The method according to claim 1, wherein step (e)  
further comprises:  
reconstructing the compressed image; and,  
calculating the distortion from the reconstructed  
25 image.

4. The method according to claim 3, said method further  
comprising:  
(g) re-compressing the reconstructed image  
30 corresponding to the selected manner of segmentation.

5. The method according to claim 1, said method further  
comprising:  
(g) outputting the compressed image corresponding  
35 to the selected manner of segmentation.

6. The method according to claim 1, wherein the optimal compromise between the rate and distortion is achieved when a weighted sum of the rate and distortion is at a minimum.

5        7. The method according to claim 6, wherein the weighting of the sum is set to favor one of the rate and distortion over the other.

8. The method according to claim 6, wherein the  
10 weighting of the sum is adjustable.

9. An image compression system for compressing an input image, said system comprising:

15        a first processing bank, said first processing bank including an array of first processors, wherein each first processor has a distinct coder which separately carries out coding to segment and compress the image, said first processors each outputting a bit rate and image distortion measurement resulting from their respective codings; and,  
20        an optimization engine which receives each pair of the rate and distortion measurements from the first processors, said optimization engine selecting the first processor having an optimized compromise between the rate and distortion measurements.

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10. The image compression system according to claim 9, wherein the coders of the first processors segment the image using a 3-layer MRC model.

30        11. The image compression system according to claim 9, wherein the optimization engine calculates the optimized compromise between the rate and distortion measurements using a cost function which is a weighted sum thereof, said optimization engine selecting the first processor whose  
35 associated cost function is lowest.

13. The image compression system according to claim 9,  
5 wherein each of the first processors further includes a  
decoder which reconstructs the image from the coder, said  
reconstructed image being a basis for the distortion  
measurement.

a second processing bank, said second processing bank including an array of coders, wherein the reconstructed image from the selected first processor is transmitted to a corresponding coder in the second processing bank for re-coding, said re-coding being the same as the coding carried out by the selected first processor.

16. The image compression system according to claim 15,  
wherein the image compression system is incorporated in a  
document processing network such that the compressed image is  
25 routed over the network to an output device in compressed  
form.

17. The image compression system according to claim 16,  
30 wherein the output device is selected from the group  
consisting of a printer, a digital copier, a xerographic  
copier, a fax machine, a monitor, and a storage device.